PATENT APPLICATION

RESPONSE UNDER 37 CFR §1.116
EXPEDITED PROCEDURE
TECHNOLOGY CENTER ART UNIT 2623

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Zhigang FAN et al.   **RECEIVED**   Group Art Unit: 2623

                                       JAN 2 2 2003
Application No.:   09/447,554   Examiner: J. Wu

                                    Technology Center 2800
Filed: November 23, 1999   Docket No.:   104184

For: MAXIMUM LIKELIHOOD ESTIMATION OF JPEG QUANTIZATION VALUES

REQUEST FOR RECONSIDERATION UNDER 37 CFR §1.116

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

In reply to the November 18, 2002 Office Action, and further to the personal

interview conducted on January 9, 2003, reconsideration of the rejections is respectfully

requested. Claims 1-22 are pending.

Entry of the Request is proper under 37 C.F.R. §1.116 since the Request: (a) places

the application in condition for allowance (for the reasons discussed herein); (b) does not

raise any new issue requiring further search and/or consideration; (c) does not present any

additional claims without canceling a corresponding number of finally rejected claims; and

(d) places the application in better form for appeal, should an appeal be necessary. Entry of

the Request is thus respectfully requested.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner

Wu during the January 9, 2003 personal interview. Applicants' separate record of the

substance of the interview is incorporated into the following remarks.

An Information Disclosure Statement with Form PTO-1449 was filed in the above-captioned patent application on February 8, 2002. The Office Action mailed August 23, 2002 indicated that a copy of the Form PTO-1449 was attached. However, Applicants did not receive a copy of the Form PTO-1449 with the Office Action. The Examiner is respectfully requested to provide Applicants' undersigned representative with a signed and initialed Form PTO-1449 acknowledging the fact that the Examiner has considered the disclosed information. The Examiner is requested to contact the undersigned if a copy of the February 8, 2002 Information Disclosure Statement is not present in the Patent Office file.

Claims 1-5, 7-8, 10-15, 17-18 and 20-22 are rejected under 35 U.S.C. §103(a) over van den Branden et al. (hereinafter "Branden"), U.S. Patent 6,011,868 in view of Shimizu et al. (hereinafter "Shimizu"), U.S. Patent No. 6,064,324 or Coleman et al. (hereinafter "Coleman"), U.S. Patent No. 5,434,623; claims 6 and 16 are rejected under 35 U.S.C. §103(a) over Branden, Shimizu and Coleman in view of Daly, U.S. Patent 5,150,433; and claims 9 and 19 are rejected under 35 U.S.C. §103(a) over Branden, Shimizu and Coleman and further in view of "Statistical Analysis of the DCT Coefficients and Their Quantization Error", Yovanof et al., IEEE, vol. 1, pgs. 601-605, 1997 (hereinafter "Yovanof"). The rejections are respectfully traversed.

As discussed during the personal interview, the combination of Branden, Shimizu and Coleman fails to teach or disclose a method for processing decompressed image data, comprising receiving decompressed image data, creating an estimated quantization table from the received decompressed image data, and processing the decompressed image data based on the created estimated quantization table to form processed electronic image data, as recited in claim 1 and as similarly recited in claim 11.

As agreed to during the personal interview, Branden fails to creating an estimated quantization table from the received decompressed image data. In particular, as discussed

during the personal interview, page 3 of the Office Action states that Branden fails to disclose creating a quantization table without transmitting the quantization table used in the compression process. However, the Office Action further states that the process is well known in the art. Applicants respectfully disagree that the process is well known in the art.

In particular, Applicants submit that nowhere does either Shimizu or Coleman teach or disclose a method for processing decompressed image data, comprising ... creating an estimated quantization table from the received decompressed image data, and processing the decompressed image data based on the created estimated quantization table to form processed electronic image data, as recited in claim 1 and as similarly recited in claim 11.

As discussed during the personal interview, quantization is basically a process for reducing the precision of DCT coefficients (page 4, lines 16-18 of Applicants' specification). Quantization is performed to achieve the maximum amount of compression by representing DCT coefficients with no greater precision than is necessary to achieve the desired image quality. Further, a DCT coefficient is quantized by being divided by a nonzero positive integer called a quantization value, which is contained in the quantization table, and truncating or rounding the quotient, or the quantized DCT coefficient, to the nearest lower integer (pg. 4, lines 19-24 of Applicants' specification).

Page 3 of the Office Action states that Shimizu, in an analogous art, discloses a decoding method and apparatus to create a quantization table width without transmitting information about the quantization width. However, in contrast to Applicants' claims 1 and 11, Shimizu discloses a digital signal encoding and decoding method wherein at the time of encoding a digital signal, the quantization width, i.e., the number of quantization steps, is determined based on the amount of encoded data which have already been encoded and information on the quantization width is not included into the generated encoded data. At the

time of decoding the encoded data, the quantization width is determined according to the amount of encoded data which have already been received (col. 2, lines 30-40).

As discussed during the personal interview, a person skilled in the art at the time of the invention would understand that a quantization width is different from a quantization table. Further, one skilled in the art at the time of the invention would understand that creating an estimated quantization table from the received decompressed image data, as recited in claim 1, and as similarly recited in claim 11, is inherently different from determining a quantization width based on the amount of encoded data which have already been received when the quantization width used to encode the data is determined based on the amount of encoded data. Accordingly, Applicants respectfully submit that Shimizu simply discloses determining the quantization width. Nowhere does Shimizu disclose creating an estimated quantization table from the received decompressed image data as recited in claim 1 and as similarly recited in claim 11.

In addition, page 3 of the Office Action states that Coleman, in an analogous art, discloses a decoding method and apparatus for creating quantization factors without transmitting information on the quantization factor. As discussed during the personal interview, Coleman simply discloses a technique for a color imaging system having a luminance component and two color difference (chrominance) components, which allots more space in the compressed data stream to the signal component of greater information content or complexity (Abstract). In particular, Coleman discloses a joint quantizing factor (Q) which is used equally on the signal components (col. 4, lines 65-68). The joint quantizer value is defined as a quantization value arrived upon by considering the information content of components of the image together (jointly) rather than independently (col. 5, lines 1-10). As discussed above, Applicants respectfully submit that one skilled in the art at the time of the invention would readily and unambiguously understand that creating an estimated

quantization table from the received decompressed image data, as recited in claim 1 and as similarly recited in claim 11, is different from determining the Q factor disclosed in Coleman.

In addition, page 4 of the Office Action states that Branden disclose the additional features recited in claims 2-5, 7, 8, 10, 12-15, 17, 18 and 20. However, Applicants submit that as agreed to during the personal interview, Branden fails to disclose creating an estimated quantization table from the received decompressed image data, as recited in claim 1 and as similarly recited in claim 11. Thus, Branden also fails to disclose any additional features regarding the step.

For at least these reasons, Applicants respectfully submit that both Shimizu and Coleman, either alone or in combination, fail to overcome the deficiencies of Branden, as discussed above with regards to claims 1 and 11. Thus, as discussed during the personal interview, the combination of Branden, Shimizu and Coleman fails to teach or disclose all the features of claims 1-5, 7-8, 10-15, 17-18 and 20. Thus, the combination of Branden, Shimizu and Coleman fails to render obvious the subject matter of claims 1-5, 7-8, 10-15, 17-18 and 20.

In addition, Applicants respectfully submit that both Yovanof and Daly fail to overcome the above-outlined deficiencies of the combination of Branden, Shimizu and Coleman, as applied to claims 1 and 11 above. Therefore, the combination of Branden, Shimizu, Coleman and Daly fails to teach, disclose or suggest all the features of claims 6 and 16 and the combination of Branden, Shimizu, Coleman and Yovanof fails to teach, disclose or suggest all the features of claims 9 and 19. Thus, the combination of Branden, Shimizu, Coleman and Daly fails to render obvious the subject matter of claims 6 and 16 and the combination of Branden, Shimizu, Coleman and Yovanof fails to render obvious the subject matter of claims 9 and 19. It is respectfully requested that the rejections be withdrawn.

In view of the foregoing, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 - 22 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Maryam M. Ipakchi
Registration No. 51,835

JAO:MMI/ccs

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OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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